

REMARKS

Reconsideration of the above-identified patent application in view of the remarks following is respectfully requested. Claims 1-6 are pending in the application. Claims 1-6 have been rejected. The rejection of claims 1-6 is respectfully traversed. With this response, claims 1-6 are amended slightly to specifically refer to the optical network units performing the actions recited. The amendment does not broaden the scope of these claims and is intended only to make them clearer vs. the prior art. Claims 7 and 8 are new and recite added limitations of claims 1 and 2 respectively. Support for the amended language and for the new claims may be found in the description of Figures 3 and 4.

The current invention is of a method for auto negotiation of forward error correction (FEC) between network units in an Ethernet passive optical network (EPON). A specific auto-negotiation mechanism is described with respect to frame-based FEC for Ethernet packets. The auto-negotiation represents a protocol change, i.e. the auto-negotiation is defined by the choice of responding with particular data (FEC or non-FEC) upon receiving the same particular data (FEC or non-FEC). This is clearly explained with reference to Figure 3 and Figure 4. An optical network unit (ONU) changes its protocol state (FEC or non-FEC) according to the state of its respective partner, an optical line terminal (OLT). Conversely, the OLT changes its protocol state according to the state of the ONU it exchanges data with. In other words, both the ONU and the OLT change the type of their transmission data (respond to communications from respective partners, OLT and ONUs) to match the type of transmission data from the respective partner. The data is thus transmitted on the link in both directions in an automatic auto-negotiation manner. With the specific FEC described, a non-FEC supporting device can work with a FEC supporting device, in contrast with all prior art and specifically in contrast with Brisette, see below. That is, the system and method can work and perform FEC with non-FEC compliant devices. The OLT and ONU can work together and enable/disable the FEC according to the status of one or both devices in the line. These are features non-existent in any prior art.

§ 102 Rejections

Claims 1-6 were rejected under 35 U.S.C. 102(e) as being anticipated by Brisette et al, US 7,062,165 (hereinafter Brisette). The rejection is respectfully traversed.

Brisette's invention does not deal with Ethernet Passive Optical Networks (EPON) at all. Brisette discloses a method to improve receiver performance using a forward error correction (FEC) mechanism with a monitoring engine. Brisette discloses a method to change a specific receiver characteristic according to certain link conditions in order to improve the link performance, not a protocol change ("auto negotiation") according to certain protocol conditions and certain link conditions. In other words, Brisette's method has nothing to do whatsoever with auto-negotiation in the sense of protocol change and interaction between link partners in an EPON. In particular, Brisette does not provide a method in which there is a choice of responding with particular data upon receiving the same particular data (or other criteria in different claims), thereby changing a transmission protocol in EPON. This choice is recited in all independent claims of the current invention.

The Examiner's position is that the invention claimed in claim 1 is anticipated by Brisette, specifically by his column 2, lines 29-43:

According to still a further aspect of the present invention, there is provided a performance monitoring device for monitoring the performance of a data regenerator that corrects a received data signal based on forward error correction information contained in the received data signal. The performance monitoring device includes comparison means for receiving a corrected binary data signal and an uncorrected binary data signal from the data regenerator and performing a bit-by-bit comparison of the corrected and uncorrected binary data signals to determine when a logic "1" has been corrected to a logic "0" and when a logic "0" has been corrected to a logic "1" by the data regenerator, and signal generating means responsive to the comparison means for generating a signal representative of the ratio of corrected logic "1"s and logic "0"s.

The description above clearly indicates that in Brisette's invention, a receiver performance (not a transmission protocol) is changed according to monitoring performed by a monitoring device on a data regenerator. The paragraph refers to exchanges between the performance monitoring device and the data regenerator.

There is no "responding" with FEC or non-FEC data to respectively FEC and non-FEC data received from an ONU (claim 1) or an OLT (claim 2). In other words, there is no auto-negotiation and there are no protocol changes (from FEC data to non-FEC data and vice versa) during transmissions between elements of a PON, as clearly described and defined in the present invention. His monitoring device compares the corrected data to uncorrected data to monitor the number of errors and the link performance.

Claim 1 of the present invention relates to an OLT receiving data from an ONU, and, if the data is FEC data, responding to the ONU with FEC data, and if non-FEC data responding to the ONU with non-FEC data. The act of responding and transmitting on the line to the ONU in a different data format represents the essence of the difference vs. Brisette's invention. In claim 2, actions parallel to those in claim 1 are recited for an ONU responding to an OLT. While in Brisette et al. the receiver performance is changed according to the monitoring of the data on the line (which is done according to the FEC BER), the actions performed in claims 1 and 2 herein by respectively an OLT and an ONU relate to responding to the partner devices on the line with a different protocol. Applicant respectfully submits that Brisette is not concerned with "response" of a PON entity (ONU or OLT) to a respective partner PON entity (OLT or ONU) using a protocol that matches the protocol used by the partner entity. Therefore Brisette fails to anticipate the invention claimed in claims 1 and 2. Moreover, since Brisette does not disclose any of the limitations of these claims, it similarly fails to render these claims obvious.

With regard to claims 3 and 5, the Examiner's position and reasons for rejection are based on the same paragraph in col. 2, lines 29-43 in Brisette. Applicant respectfully applies the same arguments used to argue for allowance of claims 1 and 2. That is, Brisette is not concerned at all with protocol changes in exchanges between an OLT and an ONU in an EPON and does not adapt the transmission (equivalent to the "responding" in claims 1 and 2) to include FEC or non-FEC data. Therefore Brisette fails to anticipate the invention claimed in claims 3 and 5. Moreover, since Brisette does not disclose some limitations of these claims, it similarly fails to render these claims obvious.

In view of the above amendments and remarks it is respectfully submitted that Claims 1-8 are in condition for allowance. Prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

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